Claims

What I claim and desire to protect by Letters Patent is

1) A method of making a stamp for microcontact printing, comprising:
injection molding an elastomer reactive mix into a mold;
substantially curing and crosslinking said elastomer reactive mix in said mold at substantially the end use temperature of a stamp to be formed from said elastomer reactive mix;
followed by a subsequent cure of said elastomer reactive mix at a temperature higher than said substantial end use temperature sufficient to harden said elastomer reactive mix to a desired elastic modulus.

2) The method of making a stamp for microcontact printing defined in claim 1 wherein said elastomer reactive material is a siloxane

3) The method of making a stamp for microcontact printing defined in claim 2 wherein said said siloxane is cured to fix its geometry while at or near the intended final use temperature, followed by a higher temperature step to harden said siloxane, without substantially inducing geometry changes to said stamp and pattern.

4) The method of making a stamp for microcontact printing defined in claim 2 wherein said siloxane elastomer mix is a vinyl addition- type siloxane two component mixture.

5) The method of making a stamp for microcontact printing defined in claim 2 wherein said siloxane is room temperature curable.

6) The method of making a stamp for microcontact printing defined in claim 1 wherein said

elastomer reactive material is selected from the group consisting of siloxane systems, epoxy systems, acrylate systems, polyurethane systems, polyphosphazine systems, styrene copolymers.

7) A method of manufacturing a flat panel display where TFT and wiring dimensions contained therein are microscopically small and registration of subsequent layers of such display is within microns over many inches, using the methoid defined in claim 1.

8) A method of manufacturing a microelectronic pattern using the method defined in claim1.

9) The method of making a stamp for microcontact printing as defined in claim 6 wherein said siloxane system contains moieties selected from the group consisting of hexamethylcyclotrisiloxane, octamethylcyclotrisiloxane, decamethylcyclotrisiloxane, octaphenylcyclotetrasiloxane, diphenylsilanediol, trimethyltriphenylcyclotrisiloxane, vinylmethylcyclosiloxanes, trifluoropropylmethylcyclosiloxanes, methylhydrocyclosiloxane, hexamethyldisiloxane, divinyltetramethyldisiloxane, tetramethyldisiloxane.

10) The method of making a stamp for microcontact printing as defined in claim 6 wherein said siloxane system comprises polydimethyl siloxane oligomers with silyl vinyl groups (- Si – C = CH_2) and polydimethyl siloxane oligomers with silicon hydride groups having the formula:

$$R'' - Si(R') - H$$

wherein R, R', R" are methyl and phenyl, vinyl and hydrogen, which will react with the vinyl groups in the presence of a catalyst to cross-link into a rubber material.